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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	LUMLEY ET AL.	EXAMINER:	RAO, G. NAGESH
SERIAL NUMBER:	10/764,907	ART UNIT:	1722
FILING DATE:	JANUARY 26, 2004		
TITLE:	DISTRIBUTION SYSTEM FOR A PASTILLATION MACHINE		

Mail Stop: APPEAL BRIEF
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF

Dear Sir:

In regard to the above referenced application, Appellant submits this Appeal Brief:

I. REAL PARTY IN INTEREST

The real party in interest is Enersul, Inc. Enersul, Inc.'s right to take action in the subject application was established by virtue of the following chain of title:

1. An Assignment from the inventors to Enersul, Inc. recorded at Reel 014931, Frame 0945.

II. RELATED APPEALS AND INTERFERENCES

The undersigned legal representative of Appellant hereby confirms that there are no known appeals or interferences relating to the present application or any parent application which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF THE CLAIMS

Claims 1-7 are pending in the application. Claims 1-7 stand rejected under a final Office Action mailed February 24, 2005. No claims have been allowed.

The rejections of each of the claims 1-7 are being appealed.

IV. STATUS OF THE AMENDMENTS

No amendments have been made to claims 1-7. Claims 1-7 are pending as originally filed. The claims 1-7 set forth in Section VIII reflect the claims as pending.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention provides a diffuser for a distribution system for use in a pastillation machine. Claim 1 is the only pending independent claim. None of claims 1-7 have means plus function or step plus function elements as permitted by 35 USC §112, sixth paragraph.

In a pastillation machine, product quality is related to the ability to effectively and evenly distribute a flowable material, so as to ensure consistent sizing of the resultant pastilles, and to avoid clustering and agglomeration in the apparatus. Applicants have developed a better means to distribute flowable substance in pastillation machines, thereby addressing many of the problems encountered in this technology.

Applicant's invention as claimed in claim 1 includes the following elements:

a. An elongate body sized to fit into a bore of a distribution bar. The foregoing elements of claim 1 are illustrated in each of the figures, but in particular Figures 3 and 9. The diffuser is shown in the figures as element 90. The diffuser includes an elongate body 92 sized to fit within a bore 68 of a distribution bar 62, which in turn is part of a distribution system 60. These elements are described in the specification at paragraph 43.

b. A centering device coupled to said elongate body 92 for engaging at least one surface of said bore 68 of said distribution bar 62, and said centering device maintains said elongate body 92 generally spaced from at least one wall of said bore 68 of the distribution bar 62 of said distribution system 60. A representative centering device is the pairs of tabs 94 of Figure 9, which are coupled to the elongate body 92 for engaging at least one surface of the bore 68 of the distribution bar 62. These structures

are well illustrated in Figures 3 and 9. These structures are also described in the specification at paragraph 43. In an alternate embodiment, the centering device may be a pair of springs that are coupled to the ends of the diffuser 90. See paragraph 48 of the specification.

VI. GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

Claims 1-3 stand rejected pursuant to 35 USC §102(b) as being anticipated by Froeschke, U.S. Patent No. 4,623,307.

Claims 4-5 stand rejected pursuant to 35 USC §103(a) as being unpatentably obvious over Froeschke, U.S. Patent No. 4,623,307, in view of Lambert, U.S. Patent No. 3,748,998.

Claims 6-7 stand rejected pursuant to 35 USC §103(a) as being unpatentably obvious over Froeschke, U.S. Patent No. 4,623,307, in view of Wark, U.S. Patent No. 6,588,598.

VII. ARGUMENT

A. Summary of the Argument

Each of Applicant's claims 1-7 stands rejected either as anticipated pursuant to 35 USC §102(b) by Froeschke, U.S. Patent No. 4,623,307 or obvious pursuant to 35 USC §103(a) over Froeschke in view of other art. Applicant submits that Froeschke, alone or in combination with the other cited references, does not teach or suggest an elongate body sized to fit into a bore of a distribution bar or a centering device coupled to said elongate body for engaging at least one surface of said bore. Since the prior art does not teach or suggest these elements, Applicant submits that claims 1-7 have been improperly rejected. Applicant's arguments are set forth in detail below.

B. The Rejection of Claims 1-3 Pursuant to 35 USC §102(b)

1. Statement of the Relevant Law Pertaining to 35 USC §102(b)

35 USC §102(b) provides:

A person shall be entitled to a patent unless...

(b) the invention was patented or described in a printed publication in this or a foreign country or in a public use or on sale in this country, more than one year prior to the date of the application for patent in the United States...

Anticipation requires the presence in a single prior art reference disclosure of every element of the claimed invention. See, e.g., *Great Northern Corp. v. Davis Core & Pad Co.*, 782 F.2d 159, 165, 228 U.S.P.Q. (BNA) 356, 358 (Fed. Cir. 1986); *Lindemann Maschinenfabrik v. American Hoist and Derrick*, 730 F.2d 1452, 221 U.S.P.Q. (BNA) 481 (Fed. Cir. 1984).

2. The Rejection of Claims 1-3 Pursuant to 35 USC §102(b) Is Improper

Claims 2 and 3 depend from claim 1. Claim 1 is limited to embodiments including each of the following elements:

a. An elongate body sized to fit into a bore of a distribution bar, and

b. A centering device coupled to said elongate body for engaging at least one surface of said bore.

Claim 1 stands rejected pursuant to 35 USC §102(b) as being anticipated by Froeschke, U.S. Patent No. 4, 623,307. Froeschke does not teach or suggest the foregoing elements, therefore, the anticipation rejection is improper under the relevant law cited above. Applicant's position is discussed in detail below.

Applicant provides a diffuser for a distribution system for use in a pastillation machine. Pastillation machines are used for forming pastilles, in particular elemental sulphur and sulphur-based fertilizer pastilles. Pastillation machines typically include an inner cylinder that receives a flowable substance from a source. An outer cylinder rotates about the inner cylinder and has rows of openings formed therein. The flowable substance is delivered under pressure from the inner cylinder, through the rows of openings in the outer cylinder. The flowable substance is then dropped onto a moving conveyor device and cooled to form hemispherical pastilles.

In producing pastilles using this technology, the even flow of material within the pastillation machine is an important consideration, as it has an impact upon the consistent sizing of the pastille product. The many holes in the distribution bar of the prior art, for example the nozzle bar 25 shown in Figure 2a of Froeschke are subject to clustering and agglomeration of the flowable substance, which results in product of inferior quality and inconsistent sizing. The holes also require frequent cleaning in order to minimize the clustering and agglomeration of the flowable substance, which results in increased equipment downtime.

In view of these deficiencies, Applicants sought a distribution system that would not be susceptible to the problems noted in the prior art. The even distribution of flowable substance, and the minimization of clustering and agglomeration were achieved by the diffuser of the present invention.

An example of a distribution system for which this technology is relevant is shown in Figure 3 of the present application. As shown, the distribution system 60 is sized to fit into a channel 100 of the inner cylinder 24 of a pastillation machine. In the assembled condition, the outer cylinder 26 sandwiches the distribution system 60 between itself and the inner cylinder 24. In this arrangement, the flowable substance flows out of the outlets 104 of the inner cylinder, through the distribution system 60 and out of openings 46 of the perforated shell 40 of the outer cylinder 26.

As shown, the distribution system 60 is comprised of a distribution bar 62 having a bore 68, that extends therethrough, and a feeder bar 64. The distribution bar 62 and feeder bar 64 are coupled together as shown in Applicant's Figures 4, 5, 6, and 7.

The distribution system 60 has an inlet surface 80 and an opposing outlet surface 82. The inlet surface 82 is located on a side of the distribution bar 62 and comprises a series of holes 84 that are spaced along the length thereof. The outlet surface 82 is located on an opposing side of the distribution bar 62 and has a series of slots 86 that are spaced along the length thereof. The feeder bar 64 has a wear surface 63 that is curved slightly to complement the curvature of the inner wall of the outer cylinder 26. A continuous slot 65 extends along the length of the feeder bar 64 and exposes the series of slots 86 of the distribution bar 62. Continuous slot 65 is wider than series of slots 86 and provides a reservoir for containing the flowable substance prior to extrusion of the substance through the rows of openings 46.

As indicated by arrow 74 in Figure 3, the diffuser of the present invention 90 is inserted into the bore 68 of the distribution bar 62. Diffuser 90 is comprised of an elongate body 92 having a centering device that comprises multiple tabs 94. Pairs of tabs 94 extend outwardly from opposing edges 93 of the body 92 at regular intervals along the length thereof. Alternating pairs of tabs 94 are bent at approximately 45 degree angles from the plane of the body 92 in opposing directions so that in an alternating pattern is produced. The pairs of tabs 94 serve to secure the body 92 in a generally centered location in the bore 68.

The diffuser 90 effects spreading of the flowable substance so that the flowable substance fills the bore 68 of the distribution bar 60 and thus, exits the distribution bar 60 evenly through the series of slots 86. The spreading effect is achieved by the impact of the flowable substance on the body 92 of the diffuser 90. The flowable substance is forced to flow along the length of the body 92 and at the same time, is forced to flow to the edges 93 of the diffuser 90. Thus, the flowable substance is essentially evenly distributed along the length of the body 92 as it flows around the edges 93 of the diffuser 90 and out through the series of slots 86

As mentioned above, the even distribution of flowable substance achieved by the diffuser of the present invention serves to address the problems encountered in machines of the prior art, as the even distribution of the flowable substance promotes the formation of pastilles that are similar in size. The present invention eliminates the need for a nozzle bar as shown in Figure 2a of Froeschke, thereby reducing the tendency for the flowable substance to cluster and agglomerate.

Froeschke, U.S. Patent No. 4,623,307, pertains to a device for extruding flowable substances in which a flowable substance is extruded from two coaxial telescoping cylindrical containers of which the outer is provided with openings on its periphery and is rotatable about the inner container. The substance is fed to the inner container and exits via a row of openings therein. As the outer container rotates, the inner and outer openings radially coincide cyclically whereby the substance falls in the form of drops onto a belt and solidifies. The row of openings of the inner container is provided in a nozzle bar which is removably attached to the periphery of a body part of the inner container.

The Examiner attempts to establish equivalence between Applicant's diffuser bar and the Froeschke nozzle bar in the following manner:

Present Invention	Froeschke
diffuser bar (60)	nozzle bar (25)
centering device (94)	groove (26)
bore (68)	inner container (3)

It remains unclear how the inner container (3) as shown in Figure 2 of Froeschke can be interpreted as the equivalent to the bore of the distribution bar in the present invention. One

skilled in the art would certainly understand a bore to mean an elongated void space that is entirely closed about its edges. It is respectfully submitted that if such a structure is not closed entirely about its edges, it becomes a groove. The inner container (3) of Froeschke does not present a bore, especially a bore being present in a distribution bar. Assuming for the moment that the Examiner has integrated the distribution bar into the inner container, there still is no 'bore', as the inner container (3) is clearly open in the region of the nozzle bar (25).

In the Examiner's Final Office Action mailed May 26, 2005, in response to Applicant's Arguments of April 22, 2005, he states that the argument about the "inner container" is moot since it was pointed out that the inner container reading on the bore 68 was figure 2 element 3 of Froeschke, not the solid body denoted by element 40 in figure 2. The Examiner is correct in that reference numeral 40 denotes the body of the container, but reference numeral 3 is still directed to the inner cylinder and in no way is this a bore of any type. There is no clear explanation as to how the inner cylinder (3) of Froeschke is equivalent to the bore of the present invention. The nozzle bar (25) of Froeschke resides in a groove in inner cylinder 3, not a bore. As clearly stated in column 4, lines 25 –27 "With the outer container 1 removed, the nozzle bar 25 is axially inserted into the T-shaped groove". This clearly supports the fact that the nozzle bar does not reside in any bore.

The issue of the centering device and groove (26) is perplexing. The Examiner asserts that the groove shown in Figure 2, element 26 is a type of centering device that is attached to both the inner container and the nozzle bar. It is unclear just how this groove 26 functions as a centering device. Groove 26 is a void space, a channel for receiving material passing through the row of openings 24 of nozzle bar 25. It is not a structure that serves to set the nozzle bar in position, let alone center it. The Examiner has argued that "The "nozzle" bar is centered along a groove on the body part of the inner container" and that "the prior art shows in Figure 2 a "bar" (25) that rests on a "groove" (26), which is within an "inner container"". While the nozzle bar may be "centered along a groove", it remains unclear just how this groove acts as a centering device for the nozzle bar. This groove is not a ridge or similar structure that would set the nozzle in position. It is merely a void that receives material prior to being extruded through openings 2 in the outer cylinder. Furthermore, the Examiner's assertion that the groove 26, which again is a void space, is attached to both the inner container and the nozzle bar is unclear. Applicant remains unclear as to how a void space attaches to an object. Once again, the Examiner has not

clearly explained this interpretation. Moreover, returning to the idea that the inner cylinder is a type of bore, the Examiner clearly states above that "the prior art shows in Figure 2 a "bar" (25) that rests on a "groove" (26), which is within an "inner container"". At this stage in the Examiner's arguments, he appears to be of the opinion that the nozzle bar does indeed rest in a groove, not a bore. This actually goes to support Applicant's position that the inner cylinder is not a type of bore.

For the reasons set forth above, claims 1-3 have been improperly rejected pursuant to 35 USC §102(b).

C. The Rejection of Claims 4-7 Pursuant to 35 USC §103(a)

1. Statement of the Relevant Law Pertaining to 35 USC §103(a)

The Examiner bears the burden of establishing a *prima facie* case of obviousness under 35 USC §103(a). To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations (MPEP 2143).

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re *Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Thus, if an element recited in the claims is not described in the cited prior art references, then *prima facie* obviousness is not established.

2. The Rejection of Claims 4-5 Pursuant to 35 USC §103(a) Is Improper

Claims 4-5 stand rejected under 35 USC §103(a) as being unpatentably obvious over Froeschke in view of Lambert, U.S. Patent No. 3,748,998.

Applicant's claims 4-5 depend from claim 1 and are allowable for the reasons set forth above with respect to claim 1. The Examiner relies on Lambert to teach the selection of material elements of claims 3 and 4.

Lambert, U.S. Patent No. 3,748,998, is directed to air diffuser systems, and more particularly to an air bar construction of sheet metal for fire resistant suspended ceilings. The reference teaches that in certain circumstances where high temperatures are experienced (i.e. fires), metals of higher melting point can be used for the structures (i.e. T-bar members) in question.

The Examiner does not propose that Lambert teaches the elongate body sized to fit into a bore of a distribution bar or a centering device coupled to the elongate body as recited in claim 1. As discussed in detail above, these elements are not taught by Froeschke. Accordingly, the prior art reference (or references when combined) does not teach or suggest all of the relevant claim limitations. Claims 4-5, therefore, have been improperly rejected pursuant to 35 USC §103(a).

3. The Rejection of Claims 6-7 Pursuant to 35 USC §103(a) Is Improper

Claims 6-7 stand rejected pursuant to 35 USC §103(a) as being unpatentably obvious over Froeschke in view of Wark, U.S. Patent No. 6,588,598. The Examiner relies on Wark to teach the centering tabs of Applicant's claims 6 and 7.

Wark, U.S. Patent No. 6,588,598, is directed to a diffuser system for multi-outlet pipe structures of the type found in coal pulverizer classifier skirts and in the piping between such classifiers and combustion chambers in coal-fired power plant delivery systems. The Examiner contends that Wark demonstrates the use of tabs on devices containing bars as means of locking and supporting the bars in place (Office Action mailed February 24, 2005, page 4). The Examiner fails to demonstrate how the tabs of Wark teach or suggest a series of tabs extending outwardly from opposite edges of Applicant's bar as required by claims 6 and 7. It is readily apparent from Figures 1, 2, and 3 of Wark that the structure the Examiner deems to read on Applicant's tabs are in fact entirely separate shortened diffuser elements or tabs 22 spatially located between diffusers 20, 21, but not attached to these diffusers (Wark, U.S. Patent No. 6,588,598, column 4, lines 48-51). Thus, the tabs of Wark clearly do not extend outward from opposing edges of a bar, and certainly are not a centering device coupled to an elongate body as required by Applicant's claims 1, 3, and 6.

The Examiner does not propose that Wark teaches the elongate body sized to fit into a bore of a distribution bar as recited in claim 1. As discussed in detail above, these elements are not taught by Froeschke. Accordingly, the prior art reference (or references when combined)

does not teach or suggest all of the relevant claim limitations. Claims 6-7, therefore, have been improperly rejected pursuant to 35 USC §103(a).

VIII. CLAIMS APPENDIX

1. A diffuser for a distribution system for use in a pastillation machine, said diffuser comprising:

an elongate body sized to fit into a bore of said distribution bar;

a centering device coupled to said elongate body for engaging at least one surface of said bore of said distribution bar; and

wherein said centering device maintains said elongate body generally spaced from at least one wall of said bore of a distribution bar of said distribution system.

2. A diffuser as claimed in claim 1 wherein said centering device maintains said elongate body generally in the center of said bore.

3. A diffuser as claimed in claim 2 wherein said elongate body is a bar.

4. A diffuser as claimed in claim 3 wherein said elongate body is comprised of steel.

5. A diffuser as claimed in claim 4 wherein said elongate body is comprised of type 316 stainless steel.

6. A diffuser as claimed in claim 3 wherein said centering device comprises a series of tabs extending outwardly from opposing edges of said bar.

7. A diffuser as claimed in claim 6 wherein said tabs are formed in pairs along the length of said bar and alternating pairs of said tabs are bent in opposing directions.

IX. EVIDENCE APPENDIX

Enclosed please find copies of the following references relied upon by the Examiner as to the grounds of rejection to be reviewed upon appeal:

1. Froeschke, U.S. Patent No. 4,623,307;
2. Lambert, U.S. Patent No. 3,748,998; and
3. Wark, U.S. Patent No. 6,588,598.

X. RELATED PROCEEDINGS APPENDIX

None.

XI. CLOSING REMARKS

For the foregoing reasons, Appellant submits that the rejection of claims 1-3 pursuant to 35 USC §102(b) is improper, that the rejection of claims 4-5 pursuant to 35 USC §103(a) is improper, and that the rejection of claims 6-7 pursuant to 35 USC §103(a) is improper. Accordingly, Appellant respectfully requests that the rejections of the Examiner be reversed.

Enclosed is the required fee of $250.00 for filing of a brief in support of appeal by a small entity. Applicant claims small entity status. See 37 CFR §1.27. The undersigned hereby authorizes the charge of any deficiency of fees submitted herewith, or the credit of any overpayment, to deposit account number 19-5117.

Respectfully Submitted,

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cc: Sim & McBurney

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